REMARKS

The Office Action dated January 9, 2007, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-26 are currently pending in the application, of which claims 1-2, 7, 9-10, 15, and 17-26 are independent claims. Claims 1-2, 5, 7-11, 13-15, 19-20, 23-24, and 26 have been amended to more particularly point out and distinctly claim the invention. No new matter has been added. Claims 1-26 are respectfully submitted for consideration.

Claims 7 and 15 were indicated as containing allowable subject matter, but were objected to as being dependent on rejected base claims. Claims 7 and 15 have been amended, and the amendment overcomes the objection by placing claims 7 and 15 in independent form including all the respective limitations of claims 2 and 10 from which claims 7 and 15 previously depended. Timely withdrawal of the objection to and allowance of claims 7 and 15 is respectfully requested.

Claims 1-16, 19-20, and 23-24 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. The Office Action took the position that "allocating resources ... by using the minimum bit rates" in claims 1, 2, 9, 10, 19, 20, 23, and 24 is unclear. The Office Action pointed out that both "minimum bit rates for the bit rate classes" and "a general minimum bit rate" are previously discussed, and stated that is unclear which is being referenced.

Claims 1, 2, 9, 10, 19, 20, 23, and 24 have been amended, and it is respectfully submitted that this rejection is moot in view of the amendment to claims 1-2, 5, 7-11, 13-15, 19-20, 23-24, and 26. Accordingly, it is respectfully requested that the rejection of claims 1-2, 5, 7-11, 13-15, 19-20, 23-24, and 26 be withdrawn.

The Office Action also noted that "the required number of bit rates" in claim 2 lacks antecedent basis. Claim 2 has been amended, and it is respectfully submitted that this rejection is moot in view of the amendment to claim 2. Accordingly, it is respectfully requested that the rejection of claim 2 be withdrawn.

The Office Action further noted that "a general minimum bit rate" in claims 5, 7, 8, 13, and 15 appears to refer to the "general minimum bit rate" in claim 2. Claims 5, 7, 8, 13, and 15 have been amended, and it is respectfully submitted that the rejection of claims 5, 7, 8, 13, and 15 is moot in view of the amendment. Thus, it is respectfully requested that the rejection of claims 5, 7, 8, 13, and 15 be withdrawn.

The Office Action additionally noted that claim 11 recites "bit rate class determination unit" but that there is already a bit rate class determination unit in claim 10, from which claim 11 depends. Claim 11 has been amended, and it is respectfully submitted that the amendment to claim 11 renders this rejection moot. Withdrawal of this rejection is respectfully requested.

The Office Action also indicated that it appeared that the "bit rate class setter" in claim 12 appears to correspond to the "bit rate setter unit" in claim 10. Applicants respectfully submit that "rate classes" are different from the rates themselves, and, thus,

Applicants respectfully submit that amendment to claim 12 is not necessary, since claim 12 defines the metes and bounds of the invention clearly.

The Office Action further noted that "the class specific minimum bit rate" in claim 14 lacks antecedent basis. Claim 14 has been amended, and it is respectfully submitted that the amendment to claim 14 renders this rejection moot. Withdrawal of this rejection is respectfully requested.

Claims 17, 21, and 25 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication No. 2004/0033806 of Daniel et al. ("Daniel"). Applicant respectfully traverses this rejection.

Claim 17 is directed to a base station including a resource arrangement unit configured to arrange resource requests into a queue. The base station also includes a resource allocation unit configured to allocate resources according to the requests in the queue by using minimum bit rates as bit rate allocation portions.

Claim 21 is directed to a base station configured to arrange resource requests into a queue. The base station is also configured to allocate resources according to the requests in the queue by using minimum bit rates as bit rate allocation portions.

Claim 25 is directed to a base station including means for arranging resource requests into a queue. The base station also includes means for allocating resources according to the requests in the queue by using minimum bit rates as bit rate allocation portions.

Applicant respectfully submits that Daniel fails to disclose or suggest all of the elements of any of the presently pending claims.

Daniel generally relates to a packet data traffic management system for mobile data networks. As explained by Daniel, at paragraphs [0008] to [0010], Daniel's aim is to provide a solution to the problem of managing quality of service in a network without manual configuration of traffic shapers, meanwhile permitting the application of a given level of service policy.

Claim 17 recites, in part, "a resource allocation unit configured to allocate resources according to the requests in the queue by using minimum bit rates as bit rate allocation portions." Applicants respectfully submit that Daniel fails to disclose or suggest at least this feature of claim 17.

Daniel mentions a concept that Daniel refers to a "minimum bit rate," but the minimum bit rate in Daniel means a portion of bandwidth guaranteed to a flow throughout the time of its passage through the system, as explained at paragraph [0076] thereof. A flow is not admitted for transmission if available resources (*i.e.* bandwidth) are not sufficient to accommodate this flow. If the flow is admitted, it will be provided with this amount of bandwidth resources, as a minimum, throughout its period of existence.

This "minimum bit rate" in Daniel, is contrasted with a maximum bit rate that is defined as the maximal amount of bandwidth that the flow is permitted to use, as

explained at paragraph [0077] thereof. Thus, in Daniel, the flow never exceeds the maximum bit rate during any time of its existence.

In other words, Daniel defines a lower limit (minimum) and an upper limit (maximum) for a bandwidth or bit rate. Thus, the minimum bandwidth is not used as a bit rate allocation portion in the sense that term is used in the presently pending claims.

Furthermore, Daniel defines a drop bit rate that is a minimum amount of bandwidth resources allowing continued existence of a flow, as explained at paragraph [0078] thereof. If available resources drop below this level, then the service level becomes unacceptable, and corresponding flows may be dropped. This drop rate, however, maybe adjusted, as explained at paragraph [0127].

An example of Daniel's resource management process is shown in Figure 7. In the process of Figure 7, bandwidth portions are allocated to service classes, aimed at satisfying the requested blocking and dropping rates. The process includes the steps of measuring the cell bandwidth, checking whether cell resources have greatly diminished, determining the local blocking and dropping rates on a per cell basis, checking the values corresponding to a convergence point to determine if a convergence point has been reached, returning previous allocations in order to get as close as possible to the given local blocking or dropping targets and gathering all allocations per service classes, as explained at paragraphs [0148] to [0219] thereof.

As explained at paragraphs [0235] to [0240], after guaranteed bandwidth has been allocated, the spare bandwidth is calculated. The spare bandwidth is allocated to service

classes according to their respective absolute priority levels and demand for this spare bandwidth.

Thus, Daniel does not disclose or suggest that minimum bit rates for bit rate classes and a general minimum bit rate would be set as recited in the presently pending claims. Additionally, Daniel does not disclose or suggested that resources in a telecommunication system can be allocated by using at least one of: the minimum bit rates for the bit rate classes and the general bit rate as bit rate allocation portions.

Furthermore, Daniel does not set a target to a maximum transmission power. Instead, Daniel describes that Daniel's target is to optimize user experience, usage, and packet transmissions in the network, with the object being to provide systems and methods for dynamically managing data traffic in cellular networks.

The Office Action took the position that these features are disclosed by Daniel at paragraphs [0074] to [0076], [0149], [0205], [0218] to [0219], [0221], [0223], [0231], [0240], and [0257] to [0258]. Applicants respectfully disagree.

As set forth in detail above, none of the cited paragraphs disclose or suggest "a resource allocation unit configured to allocate resources according to the requests in the queue by using minimum bit rates as bit rate allocation portions," as recited by claim 17. As explained above, despite Daniel's use of the term "minimum bit rate," the cited portions do not disclose using minimum bit rates as bit rate allocation portions. Thus, the cited passages cannot and do not disclose or suggest the feature "a resource allocation unit configured to allocate resources according to the requests in the queue by using

minimum bit rates as bit rate allocation portions," as recited by claim 17. Accordingly, it is respectfully requested that the rejection of claim 17 be withdrawn.

Independent claims 21 and 25 each have their own scope. However, claims 21 and 25 recite at least some similar features to claim 17, and were not separately rejected. Thus, it is respectfully submitted that distinctions noted above with respect to claim 17 also apply to claims 21 and 25. It is, therefore, respectfully requested that the rejection of claims 21 and 25 be withdrawn.

Claims 1-6, 8-14, and 16-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel in view of WO 0163851 of Raitola et al. ("Raitola"). The Office Action took the position that Raitola teaches many of the features of the claims, and cited Daniel to remedy the deficiencies of Raitola. Applicants respectfully traverse this rejection.

Claim 1, upon which claims 3-4 depend, is directed to a data transmission method including determining a number of bit rate classes. The method also includes setting minimum bit rates for the bit rate classes. The method further includes setting a general minimum bit rate. The method additionally includes setting a maximum transmission power target. The method also includes arranging resource requests into a queue. The method further includes allocating resources in a telecommunication system according to the requests in the queue by using as bit rate allocation portions at least one of: the minimum bit rates for the bit classes and the general bit rate until the maximum transmission power target is achieved.

Claim 2, upon which claims 5-6 and 8 depend, is directed to a data transmission method including determining a number of bit rate classes. The method also includes setting minimum bit rates for the bit rate classes. The method further includes setting a general minimum bit rate. The method additionally includes setting a maximum transmission power target. The method also includes arranging resource requests into a queue. The method further includes allocating resources in a telecommunication system according to the requests in the queue by using as bit rate allocation portions at least one of: the minimum bit rates for the bit classes and the general bit rate. The method additionally includes, if the maximum transmission power target is not achieved when resources have been allocated to all users in the queue, increasing bit rates based on the queue until the maximum transmission power target is achieved. The method also includes, if the resource requests cause too much load in relation to the maximum transmission power target, decreasing a required number of bit rates in a predetermined way.

Claim 9 is directed to a radio network controller including a bit rate class determination unit configured to determine a number of bit rate classes. The controller also includes a bit rate setter unit configured to set minimum bit rates for the bit rate classes. The controller further includes a general bit rate setter unit configured to set a general minimum bit rate. The controller additionally includes a maximum transmission power target setter unit configured to set a maximum transmission power target. The controller also includes a queue unit configured to arrange resource requests into a queue.

The controller further includes a resource allocation unit configured to allocate resources according to the requests in the queue by using as bit rate allocation portions at least one of: the minimum bit rates for the bit classes and the general bit rate until the maximum transmission power target is achieved.

Claim 10, upon which claims 11-14 and 16 depend, is directed to a radio network controller including a bit rate class determination unit configured to determine a number of bit rate classes. The controller also includes a bit rate setter unit configured to set minimum bit rates for the bit rate classes. The controller further includes a general bit rate setter unit configured to set a general minimum bit rate. The controller additionally includes a maximum transmission power target setter unit configured to set a maximum transmission power target. The controller also includes a queue unit configured to arrange resource requests into a queue. The controller further includes a resource allocation unit configured to allocate resources according to the requests in the queue by using as bit rate allocation portions at least one of: the minimum bit rates for the bit classes and the general bit rate. The controller additionally includes a bit rate increaser unit configured to increase bit rates based on the queue until the maximum transmission power target is achieved. The controller also includes a bit rate decreaser unit configured to decrease the required number of bit rates in a predetermined way.

Claim 17 is discussed above.

Claim 18 is directed to a base station including a resource arrangement unit configured to arrange resource requests into a queue. The base station also includes a

resource allocation unit configured to allocate resources according to the requests in the queue by using minimum bit rates as bit rate allocation portions. The base station further includes a bit rate increaser unit configured to increase bit rates based on the queue until a maximum target set for a transmission power is achieved. The base station additionally includes a bit rate decreaser unit configured to decrease a required number of bit rates in a predetermined way.

Claim 19 is directed to a radio network controller configured to determine a number of bit rate classes. The controller is also configured to set minimum bit rates for the bit rate classes. The controller is further configured to set a general minimum bit rate. The controller is additionally configured to set a maximum transmission power target. The controller is also configured to arrange resource requests into a queue. The controller is further configured to allocate resources according to the requests in the queue by using as bit rate allocation portions at least one of: the minimum bit rates for the bit classes and the general bit rate until the maximum transmission power target is achieved.

Claim 20 is directed to a radio network controller configured to determine a number of bit rate classes. The controller is also configured to set minimum bit rates for the bit rate classes. The controller is further configured to set a general minimum bit rate. The controller is additionally configured to set a maximum transmission power target. The controller is also configured to arrange resource requests into a queue. The controller is further configured to allocate resources according to the requests in the

queue by using as bit rate allocation portions at least one of: the minimum bit rates for the bit classes and the general bit rate. The controller is additionally configured to increase bit rates based on the queue until the maximum transmission power target is achieved. The controller is also configured to decrease the required number of bit rates in a predetermined way.

Claim 21 is discussed above.

Claim 22 is directed to a base station configured to arrange resource requests into a queue. The base station is also configured to allocate resources according to the requests in the queue by using minimum bit rates as bit rate allocation portions. The base station is further configured to increase bit rates based on the queue until a maximum target set for a transmission power is achieved. The base station is additionally configured to decrease a required number of bit rates in a predetermined way.

Claim 23 is directed to a radio network controller including means for determining a number of bit rate classes. The controller also includes means for setting minimum bit rates for the bit rate classes. The controller further includes means for setting a general minimum bit rate. The controller additionally includes means for setting a maximum transmission power target. The controller also includes means for arranging resource requests into a queue. The controller further includes means for allocating resources according to the requests in the queue by using as bit rate allocation portions at least one of: the minimum bit rates for the bit classes and the general bit rate until the maximum transmission power target is achieved.

Claim 24 is directed to a radio network controller including means for determining a number of bit rate classes. The radio network controller also includes means for setting minimum bit rates for the bit rate classes. The radio network controller further includes means for setting a general minimum bit rate. The radio network controller additionally includes means for setting a maximum transmission power target. The radio network controller also includes means for arranging resource requests into a queue. The radio network controller further includes means for allocating resources according to the requests in the queue by using as bit rate allocation portions at least one of: the minimum bit rates for the bit classes and the general bit rate. The radio network controller additionally includes means for increasing bit rates based on the queue until the maximum transmission power target is achieved. The radio network controller also includes means for decreasing a required number of bit rates in a predetermined way.

Claim 25 is discussed above.

Claim 26 is directed to a base station including means for arranging resource requests into a queue. The base station also includes means for allocating resources according to the requests in the queue by using minimum bit rates as bit rate allocation portions. The base station further includes means for increasing bit rates based on the queue until a maximum target set for a transmission power is achieved. The base station additionally includes means for decreasing a required number of bit rates in a predetermined way.

Applicants respectfully submit that the combination of Raitola and Daniel fails to disclose or suggest all of the elements of any of the presently pending claims.

Raitola generally relates to a method for capacity allocation for packet data headers. At page 9, lines 9-20, Raitola indicates that bit rate allocation is initiated by a bit rate request that the packet scheduler (PS) receives from a mobile station or a base station. The packet scheduler allocates resources based on parameters, such as a requested bit rate, system load, and estimated load change. The packet scheduler may allocate the requested bit rate, a smaller bit rate, may deny the request, or may postpone the allocation.

As explained at page 10, lines 10-12, the packet scheduler of Raitola may have a target power that it tries to reach. However, Raitola permits the target to be occasionally exceeded.

As explained at page 11, lines 31-34, in Raitola, if the PS is not able to allocate capacity for every bearer that requests capacity, the unscheduled capacity requests remain in the respective queues. As further explained at column 12, lines 8-10, the bearer bit rate can be modified by the PS during a packet switched connection. Moreover, as explained at page 13, lines 14-22, Raitola indicates that different timing periods for allocation and modification may reduce the signaling and load at the radio network controller (RNC). In particular, Raitola indicates that because modification takes more signaling resources and load than allocation, allocation should be performed more frequently than modification.

At page 20, lines 18-32, Raitola indicates that the selection of bearers whose bit rates are to be decreased can be done randomly. However, Raitola provides several priorities or rules that can be taken into account. Raitola provides a specific example of decreasing the

bit rates of lower priority class bearers in random order, then higher priority class bearers in random order, then switching lower priority class bearers from a dedicated transport channel (DCH) to a CCH in random order, and finally switching higher priority class bearers from DCH to CCH in random order.

Thus, Raitola explains that capacity allocation is based on a use of minimum allowed bit rates that are cell specific configuration parameters. The rule of the minimum allowed bit rates is that they define the minimum peak bit rate that can be allocated (see page 19, lines 12-25, of Raitola). The minimum allowed bit rates are used to define lower limits for bit rates (see page 20, lines 11-16). The use of minimum allowed bit rates can be seen in Figure 3 of Raitola. As shown in Figure 3, the fifth request obtains no allocation despite there being free capacity, because the amount of free capacity is less than the minimum bit rate (128 kbps) (see page 19, lines 29-32).

As can be seen above, Raitola describes the use of only one minimum bit rate. In certain embodiments of the present invention, in contrast, several minimum bit rates are set, for example: a general minimum bit rate and minimum bit rates for bit rate classes. A general minimum bit rate can be allocated if there is too little capacity left for the bit rate class-specific minimum bit rates to be used, as can be seen from page 9, line 34, to page 10, line 12, of the present specification (paragraph [0057] of the published version of the present application).

Additionally, unlike certain embodiments of the present invention, Raitola presents bearer classes only to be used for prioritizing bearers from which bit rates are decreased (see page 20, lines 18-22). In Figure 4 of Raitola, for example, Raitola shows a flow chart

depicting the bit rate algorithm of Raitola in the event of an increasing load. As can be seen by reviewing Figure 4 (and the corresponding description at page 20 of Raitola), Raitola does not disclose or suggest that bit rate classes or anything analogous thereto would be determined. Furthermore, Raitola does not disclose or suggest that different minimum bit rates would be defined for the bearer classes.

The distinctions between Raitola's disclosure and certain embodiments of the present invention are reflected in the claims. For example, claims 1-2, 9-10, and 17-26 each recite: "allocat[ing] resources ... according to the requests in the queue by using [the] minimum bit rates [as bit rate allocation portions]." Applicants respectfully submit that Raitola does not disclose or suggest at least this feature. The Office Action, at page 5, agreed that Raitola does not disclose theses features, and, therefore, cited Daniel to remedy Raitola's deficiencies in this regard.

As noted above, however, Daniel does not disclose or suggest that minimum bit rates for bit rate classes and a general minimum bit rate would be set as recited in the presently pending claims. Additionally, Daniel does not disclose or suggested that resources in a telecommunication system can be allocated by using at least one of: the minimum bit rates for the bit rate classes and the general bit rate as bit rate allocation portions. Accordingly, for the detailed reasons set forth above, Daniel cannot remedy the deficiencies of Raitola with respect to claims 1-2, 9-10, and 17-26. Therefore, it is respectfully requested that the rejection of claims 1-2, 9-10, and 17-26 be withdrawn.

Furthermore, Daniel does not set a target to a maximum transmission power. Instead, Daniel describes that Daniel's target is to optimize user experience, usage, and packet transmissions in the network, with the object being to provide systems and methods for dynamically managing data traffic in cellular networks.

Accordingly, one of ordinary skill in the art, interested in solving a problem of effective resource allocation and simultaneously taking into account a maximum allowable transmission power, would not have combined Raitola and Daniel. Thus, the combination would not be *prima facie* obvious, and the rejection should be withdrawn.

Nevertheless, even if one of ordinary skill in the art combined Daniel and Raitola, such an one would not have arrived at the recitations of the presently pending claims, since neither Daniel nor Raitola discloses setting minimum bit rates for bit rate classes and the general bit rate as bit rate allocation portions.

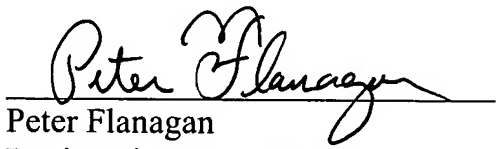
Claims 3-6, 8, 12-14, and 16 depend respectively from, and further limit claims 1, 2, and 10. It is, therefore, respectfully submitted that each of claims 3-6, 8, 12-14, and 16 recite subject matter that is neither disclosed nor suggested in the combination of Raitola and Daniel, whether or not such a combination is proper. Consequently, it is respectfully requested that the rejection of claims 3-6, 8, 12-14, and 16 be withdrawn.

For the reasons set forth above, it is respectfully submitted that each of claims 1-26 recites subject matter that is neither disclosed nor suggested in the cited art. It is, therefore, respectfully requested that all of claims 1-26 be allowed, and that this application be passed to issue.

If, for any reason, the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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